

Modified Live Type 1a Bovine Viral Diarrhea Virus (BVDV) Provides Fetal Protection Against Challenge with a Type 2 BVDV

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Abstract

Twenty-one heifers vaccinated with a modified live virus (MLV) type 1a BVDV vaccine (Pyramid MLV 4) and eight unvaccinated control heifers were bred between 28 and 53 days post-vaccination. The heifers were inoculated intranasally with $4.6 \log^{10}$ TCID₅₀ of a noncytopathic (ncp) type 2 BVDV once between Day 74 to Day 85 of gestation. Whole blood was obtained daily from inoculation through Day 21 post-inoculation (p.i.). Fetuses were recovered by C-section 21 days p.i. Pooled fetal tissues, allantoic and amniotic fluids were assayed by virus isolation (VI). Virus isolation was performed

on WBC lysates prepared from whole blood samples. Serum neutralizing antibody titers to both type 1a and type 2 BVDV were determined on p.i. Days 0, 21, and 35. BVDV was not isolated from the 21 fetuses (0%) of the vaccinated heifers but was isolated from 5 of 7 of the fetuses (71%) from the control heifers. All control heifers with VI positive fetuses were viremic and seroconverted to type 2 BVDV. Six of 21 vaccinated heifers were also viremic on at least one day, and 12 of 21 (57%) seroconverted to type 2 BVDV. These results suggest that vaccination with MLV type 1a BVDV vaccine can provide fetal protection should the dam be exposed to an antigenically unrelated BVDV.